AMS
In Pursuit of Excellence

HIGH SPEED

Drill Tap Machining Centers

- DART S
- DTC-400 / DTC-400 XL
- DTC-400 XL-L
- SUPER DART

Ace Micromatic
Group Company

High Speed Drill Tap Machining Centers

The Drill Tap Machining Centers are designed specifically for drill tap application along with full milling capabilities.

These Machines are compact and powerful, loaded with BT-30 (or equivalent sizes in HSK or BBT type) spindles. The machines are built with optimally designed structure to take care of cutting forces, cushioning high speed and accurate machining. The quick return function enables accurate tapping and reduction in cycle time. These machines are equipped with Automatic Tool Changers with different capacities based on the machine size and application. Based on the applications, spindle and axes motors are chosen to achieve the necessary speed and torque. Thanks to extensive design features, AMS machines can be adapted to meet a very broad range of requirements. Every component is assembled considering the quality of the final product into account.

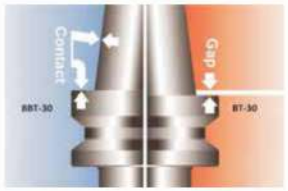
Machine structures are meticulously designed and analysed using FEA technique to address the problem at root level itself. and robustly made for high rigidity and accuracy. These structures are naturally seasoned for improved machinability.

High Speed Spindles

Spindles are considered as the heart of the machining center. AMS follows a stringent procedure in assembling and mounting the spindle on to the machine. These machines can be equipped with either BT-30, BBT-30 & HSK A50. These spindles are checked for run-out and vibrations before the machining test.

BT-30

BBT-30 Spindles



BBT is a spindle system that provides dual contact between the spindle face and the flange face of tooling. BBT greatly increase tool rigidity, reduce run out and add significant productivity to machining applications. The unique tool holding technology increases surface contact with the tool holder, maximizing rigidity and clamping pressure. There is a significant advantage in tool life, accuracy and cutting capability when compared to standard tool holders.

Quality & Inspection

The machine geometric accuracies are fullyinspected to assure the highest accuracy standards. The high precision laser unit is appliedfor inspecting positioning accuracy & repeatability& ball bar tester to inspect the geometric error& ensures superior circular accuracy throughparameter adjustment.

Cutting inspection

Heavy cut & NAS test before shipment, each AMS machine is subject to cutting tests which are combined with proper parameter adjustments to guarantee the best possible cutting quality.

Automatic tool changer

Front mounted ATC

Side mounted ATC

12 tool front mounted ATC is standard for Dart s DTC-400 and 16 tool pocket tilting type ATC is standard for DTC-400XL & DTC-400XL-L

20 tool side mounted ATC is standard for Super Dart & Optional for DTC-400XL & DTC-400XL-L

Rotary table

NIKKEN

UCAM

AMS recommends UCAM URH 201 or NIKKEN 180LFA model based on customer requirements for dart series. Fully synchronized 4th axis configuration are available on AMS dart series machines & 5th axis configuration on some of the models

Accuracy

	VDI DGQ 3441	ISO 230-2
Positioning	0.015 mm	0.010 mm
Repeatability	± 0.005 mm	± 0.003 mm

Automatic pallet changer

The automatic pallet changer system on the machine reduces unproductive time during machining. Machining can be carried out on one pallet, while the other can be used for preparation (seating and clamping of work-pieces etc.).

Two options available 1. Linear pallet changer 2.Rotary pallet changer

Linear APC	Dart s	DTC-400	Super dart
Pallet size (mm)	500 x 325	600 x 385	650 x 430
Max. load on pallet (Kgf.)	350	350	350
Pallet changing time (Sec.)	15	15	15
Machine (width x depth)	2500 x 2800	2700 x 2800	3300 x 3300

Rotary APC

Rotary APC	DTC-400 XL	Super Dart
Pallet size (mm)	600 x 400	700 x 450
Max. load on pallet (Kgf.)	250	350
Pallet changing time (Sec.)	10	10
Machine (width x depth)	2700 x 4100	2800 x 4100

Coolant system

Std. Coolant tank

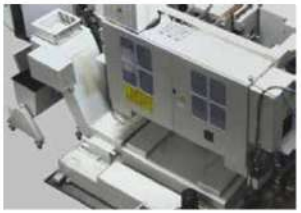
Grundfos or Wanner Pump

Through coolant increases tool life, allows higher cutting speeds, and clears chips during deep hole drilling. Two systems are available.
1. CTS with Grundfos Pump (21 bar pressure)
2. CTS with Wanner Pump (50 bar pressure).

Coolant Tank:

Large capacity chip tray, reliable & trouble free, convenient & easy to maintain

Chip Conveyor



Removing chips is very important in terms of productivity & environmental protection. AMS provides various chip handling systems for better work environment. Coil conveyor & screw conveyor also offered for cast iron and steel applications.

	Al Chips	Cast Iron Chips	Steel (Short Chips)
Scraper	✓	✓	
Slat cum scraper	✓	✓	✓
Magnetic		✓	✓

Tool Management

Work & Tool offset

Touch probe

Tool setter

Tool breakage detection

CNC Control System Options

Operator friendly control system with 10.4" Colour LCD (Fanuc)

FANUC 0iMF is standard for all models

Siemens 828D is optional

Mitsubishi M80BVU can also be offered

FANUC 0iMF

Siemens 828D

Mitsubishi M80BVU

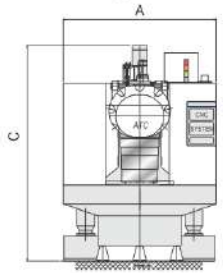
Tooled up Solutions

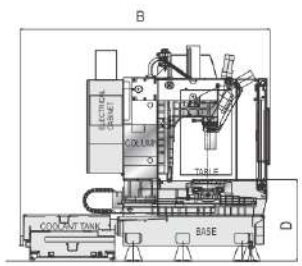
The application engineering team of AMS has wide experience in identifying the process for machining and providing suitable work holding and tooling solutions. This ranges across the markets from high speed & productivity solutions for the automotive industry to the high precision and accuracy solutions for the aerospace or mould making industry. This not only includes support in selection of the most suitable machines but also designing the fixtures and identification of the ideal cutting tool for the selected process. The entire prove out of the components to meet the desired cycle time can be undertaken when solutions are opted for.

Automation Solutions

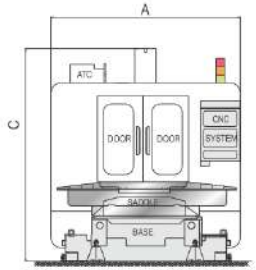
It is a constant endeavor to provide better productivity on our products. Our machines are made suitable for automation interface of different types. With the experience of providing machining solutions AMS is capable of augmenting the manufacturing process with integration of automation solutions. Either semi-automated with auto-unloading or fully automated with unmanned operations there are myriad of options to choose from suiting the machining process and layout. Our automation solutions provide enhanced productivity, output consistency and minimized dependency on man power.

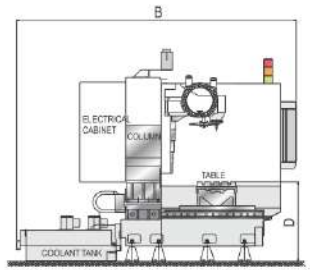
Machine Layout





** For Dart s ,DTC-400 & DTC-400XL-L*

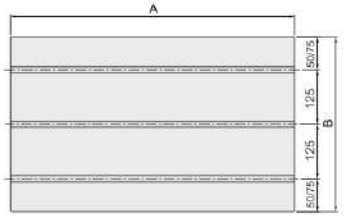


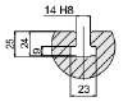


** For Super Dart*

	A (Width)	B (Depth)	C (Height)	D
DART S	1700	2800	2500	840
DTC-400/DTC-400XL	1800	2800	2500	885/835
DTC-400XL-L	2100	2800	2700	850
Super Dart	2200	3300	3000	925

Table Details





Model	Clamping Area		T-Slots		
	A	B	S	N	Pitch
DART - S	650	350	14	3	125
DTC - 400	650	400	14	3	125
DTC - 400XL- L	850	410	14	3	125
Super Dart	900	480	14	3	125

Standard Features

- Rigid tapping
- Tool shank: BT-30
- Three tier indication lamp
- Work light
- Full guarding
- Coolant tank & Chip tray
- Laser calibration & ball bar test
- 12 tool front mounted ATC for Dart s, DTC-400 & DTC-400L
- 16 tool pocket tilting type ATC for DTC-400XL
- 20 tool side mounted ATC for Super Dart
- Panel cooler for electrical cabinet

Optional Features

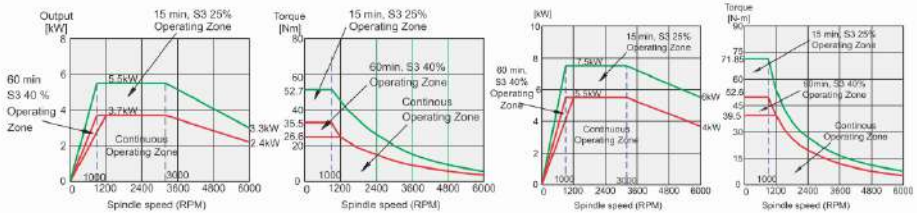
- Increased day light area
- Tool shank: BBT-30
- Tool shank: HSK A50 (Super Dart)
- Wider guarding
- Through spindle coolant system
- Coolant gun & Chip flushing system
- Chip conveyor
- Higher spindle speed
- Automatic pallet changer
- Spindle power: 7.5/5.5 kW for Dart S & DTC-400
- Front Auto door
- CNC Rotary table / Index table
- TPM Friendly machine
- Tooled up solutions & Automation

Specifications

		Unit	DART-s	DTC-400	DTC-400 XL	DTC-400XL-L	SUPER DART
CAPACITY							
Table longitudinal travel (X - Axis)		mm	400	500	500	700	600
Table cross travel (Y - Axis)		mm	350	400	400	400	400
Headstock travel (Z - Axis)		mm	320	320	320	320	500
Distance from Spindle nose face to table top		mm	150-470	110-430	120-440	130-450	235 - 735
TABLE							
Table size		mm x mm	650 x 350	750 x 400	750 x 400	850 x 400	900 x 450
Max. load on table		kgf	400	400	300	300	250/400
SPINDLE							
Spindle taper			7 / 24 No. 30	7 / 24 No. 30	7 / 24 No. 30	7 / 24 No. 30	7 / 24 No. 30
Spindle speed -	Std.	rpm	80 - 8000	80 - 8000	100 - 10000	100 - 10000	80 - 8000
	Opt.	rpm	100 - 10000 120 - 12000	100 - 10000 120 - 12000	120 - 12000 15000/18000	120 - 12000 15000/18000	100 - 10000 / 150 - 15000
Spindle power		kW	5.5/3.7	5.5/3.7	7.5/5.5	7.5/5.5	7.5/5.5
Feed							
Feed rate		mm / min	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000
Rapid traverse - X / Y / Z -Std.		m / min	48 / 48 / 40	48 / 48 / 40	60 / 60 / 48	50 / 50 / 48	50 / 50 / 40
Guideways Type			LM	LM	LM	LM	LM
AUTOMATIC TOOL CHANGER							
Tool change system			Disc Armless	Disc Armless	Disc Armless	Disc Armless	Twin Arm
Tool storage capacity - Std. / Opt.		Nos.	12	12	16	16	20
Max. tool dia with all pockets full		mm	80	80	80	80	63 / 80
Max. tool length		mm	200	200	200	200	200
Max. tool weight		kgf	2.5	2.5	2.5	2.5	3
Chip to chip time**		sec.	2.7	2.7	1.8	1.8	3.8
Tool shank type			BT - 30 / BBT - 30	BT - 30 / BBT - 30	BT - 30 / BBT-30	BT - 30 / BBT-30	BT-30 / BBT - 30 / HSK A50
CNC System	FANUC - Std.		0iMF	0iMF	0iMF	0iMF	0iMF
Power supply (Basic Machine)		kVA	15	15	15	15	15
MACHINE WEIGHT - NET		Kgf	3300	3200	3200	3600	4700

** Valid for Standard specifications *All specifications are subject to change without prior notice

Spindle Power Torque Diagram



Make : Fanuc, Rated Power : 5.5 / 3.7 kW, Max. Spindle Speed : 6000 rpm

Make : Fanuc, Rated Power : 7.5 / 5.5 kW (Opt.), Max. Spindle Speed : 6000 rpm

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